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A MEMOIR ON THE YELLOW FEVER OF THE WEST INDIES,

As it occurred in the year 1838, *at St. Pierre, island of Martinique.* By E. Rufz, D. M. P., Adjunct Professor at the School of Medicine of Paris.

Translated for the Medical Examiner, from the French Manuscript.—[*Continued.*]

CASE IV.

M. Fraquet, a European, a year in the colony, thirty-two years old, of a strong constitution, was cured, soon after his arrival, of chancres and a venereal sore throat, which he had had during the whole passage. He was teacher in a school, and led a sober and regular, but sad and solitary life. He lived near the fort, in a high, well ventilated quarter, at a distance from the shipping.

On the 20th of October he had a violent headach, with fever and delirium at night. On the 21st he was bled. The symptoms continued; he was again bled; vomiting occurred on the fourth day; no dejections. On the fifth complete stupor; up to that time there was no remission, much less interruption in the progress of the symptoms.

On the 27th of October, seventh day of the disease, I was called in consultation by Dr. Noverre. There was much stupor; the patient scarcely understood our questions, but his answers were correct; pupils dilated; conjunctivæ injected; tongue red, moist, clear, tremulous, and protruded with difficulty; deglutition difficult. There was some tenderness on pressure at the region of the larynx; no return of vomiting; abdomen flaccid, and not tender; stools, only by the aid of injections; yellow colour of the whole skin and conjunctivæ; uniform heat; dorsal decubitus; the patient is able to sit up, and seems to retain his strength; pulse full and regular, eighty-four. Frictions, with Huxham's tincture and the sulphate of quinine; flying blisters the day before to the legs; two grains of sulphate of iron, with enema of powdered cinchona in Madeira wine.

I had seen the patient at 3 o'clock in the afternoon; the symptoms increased, and at 8 P. M., there were vomiting and stools of pure blood; death at midnight.

Autopsy the 28th, at 10 A. M.—The exterior was yellow, with a deep velvet tint in the dependent parts; no putrefaction.

The scalp and the sinus of the brain are full of black fluid blood. The vessels of the pia mater are also filled with the same blood. There is a slight sero-sanguinolent infiltration beneath the arachnoid, at the posterior and inferior part of the cerebral mass. Four spoonsful of serum in the ventricles. The arachnoid may be everywhere easily detached. The two cerebral substances are very firm and injected. The lungs are healthy, except some engorgement at their posterior part; the heart is equally normal. The pericardium and pleuræ contain no serum; the peritoneum is viscid to the touch, and much injected over the intestines. The stomach is dilated, and contains about a tumblerful of black and almost pure blood. It is throughout finely injected, with here and there dots like flea-bites. The mucous membrane is puckered; its consistence is generally good,—but in the great tuberosity it is more adherent, and breaks readily when raised up in strips.

The small intestines are rather contracted than dilated. Their mucous membrane is covered by a grayish substance, and presents here and there points like the stomach, of black blood. Some of these are patches, nearly half an inch broad; they are evidently sub-mucous ecchymoses, for the mucous coat is not altered. The coat itself is reddish and brittle, but not softened. The glands of Brunner are a little larger than usual, but the glands of Peyer are quite natural.

The large intestine is filled with an abundant and almost pure black blood; the mucous coat is reddish, but not altered. The spleen is large, but of good consistence. The kidneys are filled with blood; the bladder contains about three ounces of pure blood in its cavity. There are patches of ecchymosed blood, similar to those in the intestine, but its consistence is good. The liver is of ordinary size,—yellow, like that of fowls; its incised surface is gray. The large vessels are filled with black blood. The gall-bladder is filled by a thick, blackish bile; its mucous membrane is reddish, but of good consistence.

All the cellular tissue of the different organs is yellowish.

This is evidently a case of yellow fever, such as it is described. I regret that this history of the symptoms is not more complete, but this defect may be supplied by other cases which are more detailed. I will return again to the anatomical alterations in a particular chapter.

I have selected this case, because it is one of the first which I observed, and is characteristic of the disease. The cases increased. In November I saw seven, December fifteen,

January nine, February eleven, March five, April eight, May five, June six.*

Mode of attack of the disease.—The attack was often sudden. A person in good health might be seated at table, or engaged with business, and in two hours you would find him in a high fever. Or he would lie down in good health, and awake in the night with all the symptoms of the disease. (See cases.) It was less common for the attack to come on slowly; then the patients would feel, for several days before, a sensation of weight in the head, malaise, loss of appetite, with a whitish tongue, and a disagreeable characteristic breath. Sometimes there was a little cough. (See case of Mdlle. Eliza.) I have seen one or two with a real chill, so that one would think that the disease was beginning, and afterwards feel nothing for one or two days. The fever would then set in, and continue. The form would be almost intermittent at the beginning.

In more than three-fourths of the cases, the attack commences with a single regular chill, whether the disease comes on suddenly, or has been preceded by premonitory symptoms. The chill may be wanting, (see the case of Lucotte, 6th.)

This chill is not of long duration, and is followed by a lively heat, accompanied by a severe pain in the head, embracing, like a crown, the forehead and particularly the supra-orbitary arches; this pain in the head continues without intermission.

The face is red, approaching to violet; the conjunctivæ injected and shining; the pupil dilated; the eye bears with difficulty the impression of light.

The intellectual faculties are torpid; the patient does not even think of the most urgent business; he often shows great anxiety concerning the termination of the disease, or he continues to repeat that it is not the yellow fever.

The skin is warm, and often dry; but it is almost as often somewhat moist. Generally, after some hours, it is red over the whole body. The pulse is full and frequent, from one hundred to one hundred and twelve, but usually soft and easily compressed. The lumbar region and the extremities, particularly the lower, are the seat of pains which compel the patients to toss about continually. I saw one case in which the pains in the lower extremities were so insupportable as to require special treatment, (frictions and cataplasms.)†

The tongue is sometimes natural, but in a majority of cases it is whitish, approaching to yellow, and rather thickly coated; its point, moreover, is often red; it is rarely dry.

The lips are dry; the mouth clammy, with a disagreeable taste; the breath very disagreeable, with a characteristic odour. A disgust for drinks is more frequent than great thirst. Deglutition is unobstructed.

I have very rarely found the epigastrium painful to the touch, this region, as well as the whole abdomen, being almost always yielding and entirely free from pain. The arterial pulsations of the epigastrium to which M. Maker, (Annales Maritimes) following M. Belot of Havana, attaches great importance as a prognostic sign, did not present to me any peculiar character; they were, like the pulsations of the arteries generally, more or less marked, according to the greater or less intensity of the fever. There was often a sense of fulness in the stomach, with eructations, nausea, and sometimes one or two vomitings; but I have never seen in this epidemic, vomiting commence at the beginning and continue to the end without intermission, which is said to have occurred in other epidemics. The matter vomited was whitish or greenish.

The stools are rare; the urine scanty; the respiration a little accelerated. In three cases there was some cough, dry and very fatiguing; in one, this symptom was so marked, that one of the physicians called in consultation maintained that it was a case of pleurisy; but auscultation removed this doubt, for the respiration was every where very perceptible and unattended with râle.

This is a picture of the disease in its early stage.

Progress of the disease—first period.—These primary symptoms continued with the same intensity during twenty-four, forty-eight, and even sixty hours. There was no intermission, and the exacerbations were hardly perceptible. However the patients commonly said that they were at one time worse, at another time better, especially towards evening; but these exacerbations were neither appreciable by an augmentation of the pulse, nor by an increase of temperature; they were chiefly indicated by a greater degree of agitation.

The first night there was a heavy sleep, by no means refreshing, and frequently interrupted by harrassing dreams, or slight delirium. The following nights the insomnia was complete. The cephalalgia, even when it was not combatted by any treatment and when the disease was aggravated, did not last beyond the second or third day; it was replaced by a sense of weight in the head. Vomiting, when it occurred, appeared to diminish the cephalalgia;

* These are only the number of patients in my practice. In the hospital, the largest number of patients from the garrison was in the month of October, when there were two hundred and twenty-nine admissions; the smallest in December, when there were fifty-seven. In June, the last month of the series, there were sixty-seven.

† I have heard cited five or six cases in which these pains indicated large effusions of blood in the thickness of the limb, (see Velm) and consequently the formation of large abscesses when the disease was protracted.

but it yielded particularly to bleeding, sometimes to a marvellous degree. In proportion as the blood flowed, the patient experienced relief; but after an interval of some hours, the cephalalgia most commonly returned with as much severity as it exhibited before the bleeding. Cold applications to the head afforded some relief.

The pains in the loins and extremities pursued exactly the same course as the cephalalgia. When the disease did not terminate frankly, they were replaced by a sensation of general fatigue.

The heat became more and more dry, especially when the termination was not speedy.

The pulse continued to give the same number of pulsations, but it was often accelerated after bleeding, and became harder.

The injection of the eyes and face was diminished by venesection; that of the face, however, in many cases, continued after the most copious bleedings. The state of the pupils was variable, but in the greater number of cases they remained dilated.

The torpor of the intellectual faculties decreased, but there was always very great anxiety.

The tongue became more red at its tip. If there was thirst, it generally diminished; but I saw one case in which it was irremediable during four days; the nausea augmented.

Vomiting, I have said was rare during the first period; the stools were also rare and the discharges of urine no less so; most commonly, an evacuation could only be procured by an enema. The abdomen continued in the same state, yielding and free from pain.

The respiration was easy and free. In one of the four cases in which there was cough, it ceased after the bleeding, and in the other three it continued during the whole of this period.

In more than one-third of the cases which came under my observation, after the third day all the symptoms had lost some of their severity, the skin was more moist, the pulse almost natural and the urine easily passed. In one or two cases I saw epistaxis supervene at this time, and the patients exhibited signs of recovery: but generally these appearances were too slight and too rare too be considered as critical affections.

Speedily fatal termination.

In other cases the disease made a rapidly fatal progress. Some hours after its commencement, coma, delirium, icterus, suppression of urine, and black vomit succeeded, and death took place on the second day. Such is the case of Ventieghem; it is the only case of the kind that I have observed during this epidemic; but I heard mentioned, and read in the works of Perguet and Dariste, of more than one similar death during the preceding epidemics, (1802 and 1816.)

CASE V.

Ventieghem, a Belgian, aged 38 years, of a robust constitution, has sailed for four or five years from Europe to the Antilles. In September, 1837, he was treated by me for an attack of sporadic cholera morbus. He was in great danger from this attack, and was only restored to health by returning to Europe.

He came back to Martinique in January, 1839; the epidemic was then at its height. Ventieghem, during the passage, had committed great excesses in the use of alcoholic liquors, and he did not refrain from them after his arrival, although he greatly dreaded the disease.

I saw him on the 5th of January, at eight o'clock in the morning. He was well, and merely perceived that his strength had diminished, and that he could not raise with the same exertion as formerly, the packages which he had been accustomed to lift.

Towards 10 o'clock, he felt an indefinable uneasiness, and had a feeling of weakness about him. At noon, I found him in the following state: face flushed, eyes injected, extremities cold, skin warm; the pulse, however, soft and frequent; very great pain in the head; tongue whitish, moist and quite natural; neither nausea nor vomiting; no colic.

The chill lasted a half-hour, and after it was over, I took sixteen ounces of blood from him.

The patient at the conclusion of the bleeding, fainted and vomited some greenish matter. The blood was black and very warm; one-third serum, and no buff.

Towards evening the cephalalgia was diminished; there existed, however, during the whole time, a feeling of stricture at the frontal region. The face was flushed; perspiration copious; thirst excessive; three stools after injections; pulse soft enough and compressed. I directed fifty leeches behind the ears: these leeches drew little blood.

At six in the morning I found him in the following state: his face was of a purplish red, and swelled; his eyes closed and injected; his ideas confused; (he had had delirium in the night;) the cephalalgia continued; his tongue was tremulous; his thirst excessive; his pulse soft and frequent; his abdomen slightly meteorized; no evacuation from the bowels; a complete suppression of urine since yesterday evening; decubitus dorsal.

I took sixteen ounces of blood, the loss of which was followed by weakness, and a greenish evacuation. Sixty leeches were applied to the epigastrium.

At ten o'clock the bleeding was repeated to the amount of eight ounces, and was followed by a loss of strength.

Almost immediately after this third bleeding, the state of the patient grew worse every hour. The surface of the body assumed a yellowish colour; at noon the patient had almost

entirely lost his perception, and experienced great pain in swallowing.

In vain they put blisters on his extremities; and they tried to give him injections of quinine; nothing could rouse him, and in scarcely twenty-four hours after the commencement of the attack, he might have been considered moribund.

He died at eleven at night. Some moments before his death, a quack who was called in gave him an emetic, and he threw up a large quantity of black matter.

After death his body became of a greenish yellow colour. An autopsy was not made.

Second period.—But most commonly, the symptoms were not so rapid in their course. Towards the third day, when the termination was not decidedly favourable, there took place in the state of the patient, a perceptible change which authors have designated by the term, *period of repose.* In effect, the cephalalgia diminished very much or even disappeared entirely; the eyes were less injected; the face became of a darker red, which, when dissipated by the pressure of the finger, was more slowly restored. The tongue remained always coated along the middle, and red at the edges, as at the commencement of the disease; the thirst, when it had occurred, was much diminished.

The paroxysms of vomiting, if any had existed in the early stage, lost their frequency; or in some cases, it was at this time that the patient began to suffer with nausea and eructations, the precursors of this vomiting.

The epigastrium, and the abdomen generally, were almost always in their natural state. Once or twice I saw patients who complained of a feeling of fulness in the epigastrium, which made them wish to take an emetic.

Stools were obtained more easily by clysters; the matter evacuated was grayish or yellowish. In some very rare cases, two or three, in which there had been diarrhœa from the commencement, this diarrhœa ceased; or, if there had been none before, it began to establish itself.

The urine still flowed, but at greater intervals, and became more turbid.

The respiration was sometimes slow and sighing.

The skin was cooler, softer, and more minute; the pulse fell successively, from 112 to 92, 84 and 76. It was soft and regular, so that judging from these two last symptoms, the pulse and heat of skin, one would have pronounced the patient ready to enter into the convalescent stage.

But this calm was fallacious. It moreover was not in accordance with the agitated state of the patients, who turned in every direction on their beds. They often went from one bed to another, but these efforts were frequently followed by debility. There was a want of sleep, and a general uneasiness, which cannot be defined; their speech was abrupt; the patients were in an ill-humour; they were peevish and restless in the extreme, and their countenances becoming more dull, assumed a sinister appearance.

This false remission lasted after the third, and even half of the fourth day, twenty-four or thirty-six hours.

In nearly half the cases, the disease, having reached this point, began to abate, and then proceeded to a favourable termination.

It was at this period that the hæmorrhages commenced from the nose and mouth, when they did take place, (see the case of Lucotte.) Often, also, some blackish matter was vomited, resembling soot suspended in a glairy fluid.

When the termination was to be fatal, the face was distorted, and extreme anxiety was pictured in every feature. The eyelids remained half closed, the conjunctivæ became yellow, and in a short time the icterus was general. The tongue and lips were tremulous; the articulation abrupt and impeded.

Hæmorrhage from the nose and mouth came on now, or continued, if they had before taken place. The lips were covered with a very thick layer of black blood.

Vomiting occurred more frequently, and was renewed by the least movement on the part of the patient. The black matter was more abundant, and often mixed with some streaks of pure blood.

The urine was suppressed, or was very scanty, and of a dark brownish colour. The stools were grayish or bloody.

There was often added to these symptoms, considerable oppression. M. de L., one or two hours before his death, complained of an intolerable pain in the præcordial region.

The pulse remained until the last moments calm and deceptive. More frequently it diminished in frequency from 60 to 50, grew more feeble, and then became insensible. It was at this time that the coldness of the extremities came on.

Death rarely took place before the fourth or after the seventh day. The last period frequently did not last longer than one or two hours, or at the most, seven or eight. Some patients fell into a profoud coma, others retained their intellectual powers; some had convulsions, or a great degree of agitation, and even a little delirium.

I have not seen a single case of carphologia, and but two of subsultus tendinum. Once only I saw a petechial eruption supervene on the third or fourth day. I have never observed a swelling of the parotid glands of any of my patients; and I have ascertained that among the great numbers admitted into the hospital, this symptom was observed but twice. Only once was a gangrenous slough with swelling of a limb seen there. This slough was probably an abscess following one of those effu-

sions of which I have spoken. But blisters very frequently produced sloughs.

Icterus existed in all those cases which terminated fatally; it became very manifest after death, when it had not been perceived during life. I observed this symptom but twice among those who recovered. We see, then, that, although this symptom has served to give to the disease the name of yellow fever, it is far from being so frequent as might be supposed. Of 323 cases at Havana, M. Maker observed icterus in thirty-six only. The prognosis derived from the appearance of this symptom is rarely fallacious. If icterus appears before the seventh day, the case is almost always a fatal one: after the seventh, its appearance is a favourable symptom.

It is the same case with the black vomit, which hardly ever exists, except in cases of the gravest character; I have always seen it announce death. In the 323 cases above mentioned, M. Maker observed it but seven times. In all the cases which I saw, one only excepted, it was followed by death. Therefore, it should be with yellow fever as it is with variola; there should be *yellow fever without jaundice*, and *black vomit* without *black vomiting*, as there has been described *variola sine variolis*.

As for hæmorrhages, that from the intestines is less grave than that from the stomach. The case of Mad. Eliza offers a remarkable example of this (see case.) Epistaxis is less grave than hæmorrhage from the mouth, and the latter is rather favourable than otherwise, in the opinion of M. Catel, who observed it very often in the hospital. *During the course of the present epidemic*, I have neither seen nor heard of any case of hæmorrhage from the conjunctiva, the meatus auditorius, the skin, blisters, or the puncture made in venesection, examples of which are reported to have occurred during the other epidemics. In general, this hæmorrhagic tendency has appeared to me to be a phenomenon of less importance, than I had been led to consider it, by reading authors on this subject.

These hæmorrhages were frequent in the months of November and December, and subsequently in May and June; that is, at the commencement and towards the end of the epidemic. In the intermediate months this was a rare symptom. All the physicians of the city have been struck with this observation.

The blood drawn from the vein was very warm, and of a very dark colour, but soon became red by exposure to the air: it never presented a buffy appearance. The coagulum was very thick, and the serum by no means abundant.

Suppression of urine should cause very great apprehension, but it was not always followed by death. Bloody stools were often preceded by those of a grayish colour; there was generally constipation. The case in which diarrhœa occurred on the fourth day, terminated fatally.

I shall not speak of the prognostic value of other signs. In general, it may be said that there are few diseases the prognosis of which is better established, for it has been well studied in this respect.

I applied myself to the task of finding out if, at the commencement of the attack, it were possible to obtain from the circumstances connected with the case, any evidence as to the gravity of the disease. I found but four circumstances which appeared to me worthy of consideration,—1st. The constitution of the patient. 2d. His earlier or later arrival in the country. 3d. His manner of life. 4th. The period of the attack in which he commenced to be treated. As these four circumstances are, so to say, extraneous to the disease, I shall speak of them hereafter in the chapters relating to them. As for the disease itself, I found nothing in the early symptoms which could give any clue as to its termination. A severe chill was sometimes followed by a slight sickness; the other cases commencing without a chill terminated unfavourably. The violence of the febrile action, and the pains in the loins, were not always proportionate to the succeeding state of the disease. M. Maker, in his memoir, insists much on the pulsations of the cœliac artery in the epigastrium, as a prognostic sign; but the cœliac artery beats like all other arteries. This sign is moreover very difficult to appreciate.

[*To be continued.*]

Report of the Obstetric department of the Philadelphia Dispensary for the year 1839. By Joseph Warrington, M. D., Accoucheur.

Seventy-seven women have been under the care of the accoucheur, in this institution, during the year.

Seventy-nine children have been delivered, viz: 53 boys, and 26 girls; one woman having twin boys, and one twin girls.

In 47 cases, in which the presentations and positions of the fœtuses were carefully observed, they were as follows:—

Twenty-eight in the first position of vertex, 11 in 2d do., 4 in 4th do. 3 in 1st position of breech. 1 in 4th position of knees. The average duration of labour in 45 cases, was 11 hours, 26 minutes; the extremes being 30 minutes, and 31 hours.

The average time required for the spontaneous expulsion of the placenta in 51 cases, was 19 minutes, the extremes being 5, and 60 minutes. In 6 other cases, some manual aid was necessary to the delivery of this mass, after a retention for 30, 60, 90, 120 and 240 minutes respectively.

In each of these cases the delay of its delivery depended upon either atony of the

uterus, or the manner in which the placenta presented at its orifice, and *not* to *adhesion* or *hour-glass contraction*.

The insinuation of the finger in 4 of the cases, and of the hand into the vagina and os uteri in two, was found sufficient for the completion of delivery.

In one case the fœtus presented originally in the 4th, but became spontaneously changed to the 2d position of the vertex.

In one case, flexion of the head upon the thorax did not take place until the hand was introduced, to assist the change.

The forceps were applied in four cases, viz.: in one which, 1 year and 15 days previously, had been delivered by the crotchet, in consequence of deficient amplitude of the pelvis, (child now delivered alive;) one in consequence of contraction of the antero-posterior diameter, with the additional obstacle of the jutting in of the left acetabulum, (child living, and case given in detail by Wm. H. Muller, one of the obstetric class;) in one, in consequence of an irreducible prolapsus of the cord, (child not quite dead when delivered, but could not be resuscitated,) and in a 4th case, in consequence of the defect of uterine action, and a small, but well formed pelvis—ergot having failed to effect delivery, (child living.)

Ergot was used in this one case only, during the whole year.

There were four cases of hæmorrhage,—two before labour had fairly begun; one during the early stage, and one several hours subsequent to delivery, in consequence of an attempt by the patient to rise from her bed.

In the first three cases it occurred apparently in consequence of the proximity of the placenta to the os uteri; one of these cases was accompanied with convulsions of a hysterical character.

Five children were still-born; one in consequence of an irreducible prolapsus of the cord; one from severe compression of the uterus—there being *no* liquor amnii within the membrane. The others appeared to have been dead some time previous to delivery, as the cuticle peeled off during their passage through the pelvis.

All the women recovered except one, who died of phthisis, eight days after delivery, which occurred three weeks before term,—the patient not being expected to live till that period. Delivery was effected chiefly by uterine efforts, the emaciated mother being scarcely conscious of the circumstance.

Two patients had metritis, coming on after natural and easy labours; and one other patient, after considerable manipulation and ultimate use of the forceps. These were all cured in a few days by bloodletting, general and local, moderate purgation, fomentations to abdomen, and mucilaginous injections into vagina.

There was one case of severe uterine and mammary engorgement, occurring on the third day after a natural labour; it was promptly cured by two doses of calomel and castor oil, and the frequent use of fomentations both to mammæ and abdomen.

One patient suffered much from ovaritis during the latter part of gestation. She was greatly relieved by cupping before delivery, and a free leeching subsequently.

In one case, attended by slight hæmorrhage after delivery, the placenta was found to be studded with numerous calcareous deposites upon its uterine surface. Several other placentæ were remarked to contain this species of formation, but no peculiar condition of the patient or child was noticed in connection with this circumstance.

Four or five of the children had ophthalmia; all of them recovered except one, which died in convulsions, eight days after its birth, the inflammation being intense, and no nurse could be obtained to attend upon the mother and apply the remedies proposed for the relief of the child.

Dr. Warrington holds the appointment of accoucheur to this ancient and extensive institution, with the view to establish a school of practical Midwifery. The cases are distributed amongst those members of his class who attend upon his course of practical instructions in Obstetrics, after having attended a full course of Anatomy and Midwifery in some respectable Medical School. Twenty-five gentlemen have participated in his course of instructions at the Dispensary, and attended upon the above list of cases during the past year.

The number of patients for 1839 has exceeded that for the previous year, by twenty-four.

NATIONAL MEDICAL CONVENTION.

The National Medical Convention for the revision of the Pharmacopœia of the United States, assembled in the City Hall, Washington, on the 1st day of January, 1840.

The following delegates represented their respective Medical Societies and Colleges in the Convention, viz.:

Rhode Island Medical Society—Theophilus C. Dunn, M. D.

New Jersey Medical Society—Lewis Condict, M. D.

The College of Physicians of Philadelphia—Franklin Bache, M. D., Henry Bond, M. D., Joseph Carson, M. D.

University of Pennsylvania—Geo. B. Wood, M. D.

Jefferson Medical College—Robley Dunglison, M. D.

Delaware Medical Society—William B. Morris, M. D., James Couper, M. D.

Washington University, Baltimore—John R. W. Dunbar, M. D., John C. S. Monkur, M. D., Edward Foreman, M. D.

Medical and Chirurgical Faculty of Maryland—Joshua J. Cohen, M. D.

Medical Society of the District of Columbia—Thomas Sewall, M. D., N. W. Worthington, M. D.

Columbian Medical College—Thomas Miller, M. D., Harvey Lindsly, M. D., John W. Thomas, M. D.

Vincennes Medical Society of Indiana—John W. Davis, M. D.

Georgia Medical Society—William Bacon Stevens, M. D.

The credentials of the delegates from the White Mountains Medical Society of Vermont, from the Medical Society of New Hampshire, from the Albany Medical College, and from the College of Physicians and Surgeons of Lexington, Kentucky, were presented by Dr. Condict, President of the Convention of 1830; but the delegates were prevented from attending. After the rising of the Convention, however, Josiah Bartlett, M. D., delegate from the New Hampshire Medical Society, and Samuel G. Baker, M. D., and William A. Aiken, M. D., delegates from the University of Maryland, reached Washington; and, by public notice in the papers, stated their full concurrence in the measures adopted by the Convention.

The Convention elected Lewis Condict, M. D., of New Jersey, President; George B. Wood, M. D., of Philadelphia, Vice President; N. W. Worthington, M. D., of Georgetown, D. C., Secretary; and Harvey Lindsly, M. D., of Washington, Assistant Secretary.

With the view of giving the various medical interests of the country their due weight in the deliberations of the Convention, the Surgeon General of the Army, and the Senior Naval Surgeon at Washington, were invited to participate in the proceedings.

After some other preliminary business, the Convention adopted the following resolution, offered by Dr. Bache:

Resolved, That the delegates from the different medical bodies represented in this Convention, be requested to present any written communications with which they may have been charged.

Upon calling over the several delegations, it appeared that no written communication had been forwarded to the Convention, except by the College of Physicians of Philadelphia. Dr. Bache presented from this College several documents, which he stated had been prepared with great industry and care, with a view to facilitate the revision and emendation of the Pharmacopœia of 1830. This communication elicited discussion; but with a view to more definite action, Dr. Lindsly proposed the following resolution, which was adopted.

Resolved, That the communication from the College of Physicians of Philadelphia be referred to a committee, who shall also be instructed to report a plan by which the revision and publication of the Pharmacopœia may be carried into effect.

It was resolved that the committee should consist of five members, to be named by the President; and Drs. Bache, Davis, Stevens, Cohen, and Dunn, were appointed.

Dr. Wood offered the following proposition, which was adopted.

Resolved, That a committee be appointed to report a plan for the organization of the next Convention for revising the Pharmacopœia.

It was ordered that the committee consist of three members, to be named by the President; and Drs. Wood, Sewall, and Dunglison, were appointed.

The committee to whom the documents from the College of Physicians of Philadelphia were referred, and whose duty it was to arrange a plan by which the revision and publication of the Pharmacopœia might be carried into effect, made the following report, which, with the accompanying resolution, was adopted by the Convention:

"The committee are of opinion, that the labours of revision, constituting the communication from the College of Physicians, would form a proper basis for the new Pharmacopœia; and that this communication and all others that shall be received from bodies which have appointed delegates to this Convention, should be referred to a committee of revision and publication to meet in Philadelphia as soon as practicable. As it is desirable that the Committee here proposed should have the assistance of Pharmaceutical bodies, it is recommended that authority be given to it to request the co-operation of Colleges of Pharmacy in the United States. A revising Committee thus constituted, and clothed with power to fill their own vacancies, to publish the work after the completion of the revision, and to take order on all incidental measures necessary to carry out the objects of the Convention, would, in the opinion of this Committee, form a body, to which the revision and publication of the Pharmacopœia might be safely trusted. To carry out these views, the Committee recommend the adoption of the following resolutions by the Convention:

"1. The communication from the College of Physicians of Philadelphia, and all other communications which may be received from bodies that have appointed delegates to this Convention, shall be referred to a Committee of revision and publication, consisting of seven members, three of whom shall form a quorum.

"2. The Committee thus constituted, shall meet in Philadelphia, and be convened as soon as practicable by its chairman.

"3. The Committee shall be authorized to request the co-operation of the Colleges of Pharmacy in the United States, to publish the work after the completion of the revision, and to take all other measures which they may deem necessary to carry into effect the object of the Convention.

"4. The Committee shall have power to fill its own vacancies.

"5. When the Committee shall have terminated their labours, they shall prepare a report of their proceedings, and transmit it to the Secretary of this Convention, to be laid before the next Convention."

All which is respectfully submitted.

FRANKLIN BACHE,
JNO. W. DAVIS,
WM. BACON STEVENS,
JOSHUA J. COHEN,
THEOPHILUS C. DUNN,
} Committee.

Washington, Jan. 3, 1840.

The Convention then proceeded to choose the members of the Committee of revision and publication proposed in the above report, and Drs. Wood, Bache, Dunglison, Cohen, Dunn, Stevens and Sewall, were appointed.

The committee whose duty it was to arrange a plan for the organization of the next Convention for revising the Pharmacopœia, made a report, which, at the suggestion of Dr. Stevens, was amended, so as to make the first Monday in May, 1850, the time for the meeting of the Convention, instead of the first Monday in January, 1850. The report thus amended, and modified in other respects to suit the change, was adopted by the Convention as follows:

"The Committee appointed to suggest a plan for organizing the next Convention, report, that they have taken the subject into consideration, and ask leave to submit the following resolutions, which, with a few modifications, are the same as those adopted in 1830, for the organization of the present Convention.

"1. The President of this Convention shall, on the first day of May, 1849, issue a notice, requesting the several incorporated State Medical Societies, the incorporated Medical Colleges, the incorporated Colleges of Physicians and Surgeons, and the incorporated Colleges of Pharmacy, throughout the United States, to elect a number of delegates not exceeding three, to attend a general Convention to be held at Washington, on the first Monday in May, 1850.

"2. The several incorporated bodies thus addressed shall also be requested by the President to submit the Pharmacopœia to a careful revision, and to transmit the result of their labours, through their delegates, or through any other channel, to the next Convention.

"3. The several medical and pharmaceutical bodies shall be further requested to transmit to the President of this Convention the names and residences of their respective delegates as soon as they shall have been appointed, a list of whom shall be published, under his authority, for the information of the medical public, in the newspapers and medical journals, in the month of March, 1850.

"4. In the event of the death, resignation, or inability to act of the President of the Convention, these duties shall devolve on the Vice President; and should the Vice President also be prevented from serving, upon the Secretary, or the Assistant Secretary, the latter acting in the event of the inability of the former."

GEORGE B. WOOD,
THOS. SEWALL,
ROBLEY DUNGLISON,
} Committee.

Washington, January 3, 1840.

The following resolutions were offered by Dr. Wood, and adopted by the Convention:

Resolved, 1st, That the Secretary take charge of and preserve the existing records until his successor be appointed by the Convention of 1850, when it shall be his duty to hand them over to such successor; 2d, that in case of the death, resignation, or inability to act of the Secretary, his duties shall devolve upon the Assistant Secretary; and, 3d, that it be recommended to future Conventions to appoint their Secretary and Assistant Secretary from members residing in the District of Columbia.

Dr. Bond offered the following resolution, which was adopted:

Resolved, That the Committee of Revision and Publication be requested to take such measures as they may deem most effective, to induce physicians and apothecaries to adopt the nomenclature of the Pharmacopœia in their prescriptions and labels.

Dr. Dunglison offered the following resolution:

Resolved, That the officers of this Convention be requested to prepare forthwith for publication, such part of the transactions of this Convention as may seem to them to be adapted for making extensively known its important objects and proceedings, and that they be authorized to publish the same in the various medical journals of the United States, and in such of the daily and other newspapers as they may think proper.

This resolution was adopted, and it was made the duty of the Secretary and Assistant Secretary to carry it into effect.

Having transacted business of great interest to the medical profession of their country,—having passed votes of thanks to the officers of the Convention "for the able and dignified manner in which they had discharged their respective duties," and to the Board of Aldermen of Washington for the use of their Hall,—the Convention, after a session of three days, characterized by a spirit of generous cordiality, which must contribute greatly to secure the objects for which they assembled, adjourned.

By order,

N. W. WORTHINGTON, Secretary.
HARVEY LINDSLY, Ass't Sec'ry.

P. S.—The medical journals throughout the United States are respectfully requested to copy the foregoing abstract of the proceedings of the Convention.

CLINICAL LECTURE.

PHILADELPHIA HOSPITAL.

Wednesday, January 15th, 1840.

LECTURE ON PLEURISY,—GANGRENE OF THE LUNGS,—MENINGITIS,—PNEUMONIA,—RHEUMATISM,—PATHOLOGICAL ANATOMY OF PLEURISY.

By W. W. GERHARD, M. D.

No. 9—Winter Course.

I WILL commence to-day by showing you the progress of certain cases of disease which have already been before you; and then introduce to you some cases of rheumatism, concluding the lecture with an examination of the lungs of an individual who died of pleurisy.

Case 1.—This man you saw last week. He was labouring under a complication of pleurisy and pneumonia, the former being the predominant disease. He is now convalescent, but some of the signs of the disease still remain. The most obvious of these is an enlargement of the right side of the chest. This, in most cases of pleurisy, is found persisting after the cessation of the general symptoms; and various other local signs not unfrequently continue along with it. The enlargement does not subside as soon as the inflammation, because time is required for the absorption of the effused matter; this time being greater or less according to the quality and nature of the effusion. The enlargement of the chest, from the continuance of the effusion, may be detected either by the eye, or by actual measurement. I generally ascertain it by the eye alone: this is the most convenient and easy method, when the eye has been somewhat practised in the observation of such matters. As you perceive, the effusion is likewise indicated by dulness on percussion, which, however, has become slight, and is almost confined to the base of the lung. The liquid thus gradually disappearing, the pressure is removed from the lung, and the vesicular character of the respiration is almost entirely restored. Along with these physical signs, one striking symptom of the disease only remains. This is dyspnœa: it is not constant, but is produced by any considerable exertion, such as ascending a flight of stairs. In this, as in most other cases of convalescence from pleurisy, there also remains a preternatural susceptibility to the impression of cold. In many instances there is likewise a sense of pricking or slight pain in the chest, experienced when the patient takes a full inspiration, or makes any exertion which requires a considerable distention of the chest. This symptom is owing to the stretching of the recent adhesions, which is produced by the motion. These adhesions are very sensible during the first stages of their organization; but when this process is completed, and the false membrane assumes the ordinary characters of serous membranes, this sensibility disappears, and motion produces no pain. A Burgundy pitch plaster has been applied to the chest of this patient, with a double object. In the first place, it is calculated to prevent too great motion of the pleuræ against each other, in the same manner that adhesive strips act when applied over a fractured rib. Secondly, it weakens the impression of cold upon the chest; and then, again, it is a good, permanent counter-irritant. For some time past no general treatment has been necessary.

Case 2.—This patient has also been before you more than once. He has been labouring under gangrene of the lungs consequent upon pneumonia. He is now convalescent, and is somewhat in the condition of the patient whom you have just seen; that is, he suffers from the consequences of disease, rather than from disease itself, the active signs of the latter having entirely ceased. The man, as you see, walks about without any difficulty; there is still some cough, more particularly in the morning; the expectoration is muco-purulent, and has lost its gangrenous appearance; the appetite is better, and the strength rapidly improving; the peculiar expression of his countenance is likewise indicative of convalescence. This change in the expression of the countenance, in convalescence, from acute disease, has not, I think, been sufficiently attended to by authors; it is a sort of subsidence of the features. Thus, at the decline of fevers and other acute diseases, we often observe a sudden paleness, accompanied by a sinking of the pulse, which sometimes falls, even in children, as low as fifty or sixty in the minute, and at the same time is often irregular. This state may be called the subsidence after fever, and is one of the best signs of convalescence.

For some days it has been unnecessary to put the patient under any kind of treatment, except the use of remedies calculated to relieve the few unpleasant symptoms which remain. During the progress of the pneumonia, and more particularly of the subsequent gangrene, it was necessary to employ stimuli, in order to support the system. These have been discontinued, and the patient has been put on the use of a combination of syrup of tolu, tartar emetic, and laudanum, for the relief of the cough. Opiates are extremely useful as a palliation of cough; but in acute pulmonary diseases, when there is much dyspnœa and general excitement, they must be used very cautiously. In such a case as the present, of course there can be no objection to their use.

Case 3.—This patient, whom you saw sometime ago, is also convalescent. At that time he was labouring under meningitis, which was well characterized by the ordinary signs, viz., delirium during the night, alternating with restlessness during the day; disturbance of the functions of motility and sensibility; contraction of the pupils; distortion of the mouth, and

more or less rigidity of the extremities. The latter signs were not confined to one side of the body, but shifted from one to the other; they were well marked and permanent. If the delirium and other signs had continued only one or two days, they would have indicated merely functional disorder of the brain; but their continuance for several days in succession, rendered the existence of meningitis certain. All the signs of meningitis which existed in the present case have gradually declined, and the patient is now in a state of complete convalescence. The case is interesting, from the completeness of the cure which has been effected: this disease is, however, extremely subject to relapses.

Case 4.—At one of the preceding lectures I introduced a man named Carpenter, who was labouring under a complication of pleurisy and pneumonia, with probable tubercles. He is so ill at present, that it is impossible to bring him before you; and I shall, therefore, only explain to you the changes that have taken place. When you saw him he was doing well; and I was induced, from this favourable aspect of the case, to predict a speedy recovery. But he has since had an exacerbation of symptoms. The pneumonic symptoms had considerably subsided; the relapse was owing to a sudden increase of the pleuritic effusion, in consequence either of cold, or of the epidemic constitution, which, at present, seems to predispose to inflammation of serous membranes. The increased effusion caused a corresponding pressure on the lung, which was already inflamed; and hence arose an extreme degree of dyspnœa and prostration, so that for some days past the patient's condition has been very critical. His danger has been increased by the occurrence of endocarditis. In such a state of things, the treatment becomes a matter of great nicety and caution. The condition of the system obviously forbids large abstractions of blood. The only depletion which I have ventured to practise, was the application of a single cup to the right side, to be repeated or not, according to circumstances. This may seem trifling to those who have been accustomed only to heroic bleedings in internal inflammations. But we should reflect that our object in bleeding is only to assist the operations of nature. In certain cases, by too large depletion, we are in danger of totally defeating them, and hastening the prostration of the system. After the second application of the cup, there was a very manifest improvement, as evinced by the great diminution of the dyspnœa. Even a single application is often of great service in pneumonia and pleurisy. I think the application of a single cup, repeated according to the urgency of the symptoms, preferable to venesection, or to the application of many cups, in certain cases of these diseases. But what, you may ask, are these cases? Exactly those in which the strength of the patient is exhausted by the continuance of the present disease, or by some previous one, when the powers of the system and the disease are nicely balanced. The single cup, which will take two or three ounces of blood, is a feeler, as it were, and you may afterwards, if advisable, cup again and again, or bleed. Don't misunderstand me, however; I do not wish to overrate the danger of large bleeding, or to discourage you from resorting to this powerful remedy in many cases. I wish only to let you know how much careful management of our therapeutic agents will do, especially at the nicely balanced period of the disease. I do not care to recommend very free depletion; to this, like all young practitioners, you will, I dare say, be ready enough to resort: I only warn you of the cases where this mode of treatment is not immediately necessary, nor proper, whatever it may be afterwards. I am confident that I have seen many cases of inflammatory diseases brought to a fatal termination by the incautious abstraction of blood.

Mercury has also been employed in this case, with the design of inducing slight ptyalism, and along with it the antiphlogistic action of the remedy: the ptyalism is not intended as a mode of depletion, but as a mark of the constitutional influence of mercury. This article is an admirable remedy in certain cases of acute inflammation; but this very utility has led to its abuse, and a consequent prejudice against it. It should always be recollected, that in employing mercury, we are not to push it to the extent of actual salivation; it ought to be suspended the moment it produces a slight redness of the gums, or other mark of its constitutional action. When such marks are evident, we almost always observe an immediate decline of the inflammatory action. By this cautious use of mercury, we may obtain all its good effects, without incurring the blame arising from the practice of pushing it to an injudicious extent. Under the moderate use of mercury, and very cautious depletion, our patient is again considerably improved.

I shall next show you a few cases of rheumatism. This disease is closely connected with inflammation of serous membranes, and I therefore usually consider them at the same time, or in succession. This connexion of these diseases is twofold. 1. In most cases of rheumatism, the synovial membrane of the joint is inflamed. 2. The internal serous membranes are affected by sympathy with the external ones. It was once supposed that when the internal serous membranes were affected, there was a metastasis of the inflammation; that is, the rheumatism was supposed to cease before the internal disease commenced. This is now known to be an error. We frequently observe pericarditis or endocarditis, occurring during an attack of rheumatism, reach its greatest degree of severity precisely

at the time that the rheumatism is most severe. Cases in which metastasis really occurs, are exceptions to the general rule.

Case 1.—The patient, aged forty-five, was admitted January 10th. He was a sailor until two years ago; since which time, he has been engaged about the wharves of this city as a "stevedore." He has always enjoyed good health, with the exception of an attack of fever in Calcutta, in the year 1811. About two years since he began to suffer pains in the legs and lumbar region, which were aggravated by damp and cold weather. They have lately become more constant and severe. He has been bled, and has taken medicine for their relief, but without benefit. On the 10th he complained of acute pain in the back, hips, and knees, attended by fever, and great difficulty of locomotion. Dover's powder was ordered. 11*th.*—Much better. Six dry cups were applied to the lumbar region, which were followed by great relief. 12*th.*—Pain in loins entirely gone; elsewhere not diminished. 13*th.*—Still improving: action of heart perfectly natural, as to sound and impulse. Six cups applied to lumbar region, which took nine ounces of blood. The pains in every part were much diminished by the bleeding. But the patient still complained of costiveness, and sweating at night. Rhubarb and Dover's powder were ordered.

This is a case of the subacute grade of rheumatism. There has been little or no swelling, but much pain in the lumbar region, and in the joints of the lower extremities. During the last two months the pain in the latter parts has been confined to the left side. Acute rheumatism exhibits a marked difference in the symptoms. There is not only severe pain in the joints, but a decided swelling, with a more or less distinct blush on the surface. These symptoms arise from inflammation of the fibrous membranes about the joint, extending also to the synovial membrane, and followed by effusion into its cavity. The inflammation often leaves one joint, and appears in another; in the one first attacked it gradually declines, and when it has almost disappeared, pain and swelling are developed in the other joint. Thus, the disease is transferred from joint to joint, until at last five or six may become implicated in the disease. The articulations most frequently affected are those of the wrist, elbow, knee, and ankle; the shoulder and hip are much less commonly the seat of rheumatism. Along with these local signs, the general symptoms of excitement are likewise very well marked. The pulse, particularly, is excited to a degree that may be termed extraordinary. It has a fulness and resistance which are hardly met with in any other form of disease. This variety of pulse is the most striking characteristic of the *rheumatic fever.* The heart is more or less affected in a very large proportion of cases. Sometimes its disorder is merely functional; there is only an increase of its action. But in at least one-half of the cases of severe inflammatory rheumatism, there is actual disease—an inflammation of its investing and lining membranes—though either of them may be affected singly. Strange as it may appear, very few die of these acute inflammations of the heart. Why, therefore, is attention to them so important? It is because they are apt to result in a permanent organic lesion, from which the patient's life will be really in danger. Hence the physician should, in all cases of acute rheumatism, be on the look-out for the signs of cardiac disease; and, when detected, they should receive the most active attention. Generally, such affections will be manifested by a loud rasping or bellows sound, and dulness on percussion.

With regard to the treatment of inflammatory rheumatism, I shall, at present, say nothing, further than to observe that the natural course of the disease, when fairly begun, cannot be arrested abruptly by any means within our power. Various plans have been devised for the accomplishment of this end, but none of them have been found to succeed with certainty. Notwithstanding all our efforts, the disease will frequently continue for several weeks or months without the slightest abatement.

In subacute rheumatism, which more immediately interests us, Dover's powder is one of the best remedies at our command. It has been used in the case last detailed with the most marked advantage. It acts both as a diaphoretic and an anodyne. Sweating will not cure the disease; it is, in fact, one of its invariable symptoms, unless prevented from taking place by some accidental circumstance, as a cold room, &c. When this is the case, the patient's sufferings are aggravated; hence sweating appears to be a natural palliative of the disease, and remedies calculated to encourage it, cannot but do good, though they may not effect a cure. In some inflammatory cases, sweating appears to be more properly a curative process, almost a crisis. Dry cups were also applied to the loins in the preceding case, and acted very well. Scarification was not at first directed, in order that the action of the Dover's powder might not be interfered with. Two days afterwards the cups were repeated, but this time nine ounces of blood were drawn. A still greater improvement followed this application, and the patient has ever since continued convalescent.

You will remark that the local treatment in this case was directed to the spine alone. This method of treatment has been lately introduced by some English surgeons, especially Messrs. Teal and Tate, in neuralgia. Dr. Mitchell was the first, at least in this country, who adopted this practice in rheumatism, as well as neuralgia. He applies it to acute, as well as other forms of rheumatism. My own expe-

rience has convinced me that it is best adapted to subacute cases, in which the spine and large joints of the extremities are simultaneously affected; and the pains radiate from the spine towards the limbs, especially if increased on pressure: in such instances, cups to the affected portion of the spine act almost as a specific. The utility of the practice is illustrated by the case under consideration. The first effect of cupping was to diminish the pain in the loins; but the knee and hip were subsequently relieved without any special application of the treatment to them. In some cases, however, the pain in the extremities continues after the subsidence of that in the spine; and then, of course, the cups have to be applied to the joints themselves. However perfect the cure may be, a return of the disease is nevertheless always to be looked for in rheumatic affections.

Case 2.—This patient has been affected with intermittent neuralgic pains connected with disease of the spine. He was before the class about the commencement of the course, and then presented two swellings over the dorsal vertebræ, which I considered dependent on disease of the bodies of the vertebræ. This affection was treated with moxas, cupping, rest, and occasional purging. Under this treatment the swellings have in a great measure subsided; the paralysis of the lower extremities, which accompanied them, has disappeared; and the patient can walk about without inconvenience. But some signs of the disease still remain. A few days since the patient complained of pain at the outer part of the thighs: it commenced about 4 o'clock in the afternoon, and continued an hour and a half. It returned the next day at the same hour, and continued for the same length of time. Thus, it continued in an intermittent course for seven or eight days. To test the antiperiodic powers of quinine, six grains of this article were then directed, to be taken in three doses. The pain has not returned since. You will perceive, therefore, that rheumatism, connected with affections of the spine, requires a different treatment, according to its character as regards permanence or periodicity. In the former case it is treated by cups, Dover's powder, &c.; in the latter, the sulphate of quinine is the best remedy that can be employed. It operates in the same manner that it does in intermittent fever; and, as you well know, intermittent neuralgia is of the same essential nature with intermittent fever, and is indeed frequently a consequence of it.

Case 3*d*.—This man was taken in the latter part of December with chills, followed by fever, and pains in the joints. On the 6th of January, (at which time he entered the hospital,) he complained of pain in the left shoulder and elbow, the hips, and the right ankle; sweating at night, and costiveness; the action of the heart was natural; there was little fever; no swelling of the joints. The case appears to possess more of a neuralgic, than of an inflammatory character; in proper inflammation of the joints, there is always more or less effusion into their cavities. This distinction must always be observed, for there is a corresponding discrepancy in the nature and success of the treatment adapted to the two forms of disease. This subacute or neuralgic rheumatism is very easily cured in most instances, while true inflammation of the joints is apt to prove extremely obstinate. The treatment which has been adopted in this case is as follows: On the 6th, Dover's powders and the tincture of cimicifuga, or actæa racemosa, were ordered. A gradual improvement followed the use of these remedies. On the 11th, the patient had taken 150 drops of the tincture of cimicifuga, with a constant amelioration of the symptoms. Both the Dover's powders and the cimicifuga have doubtless contributed to the cure, but most good has probably been derived from the former. When Dover's powder is employed at the same time with cups to the affected part, as in one of the cases already noticed, we are able in a great measure, to analyse their operation, and judge of the effects of each. But here there has been a gradual decline of the symptoms in all the joints affected, and it is impossible to decide upon the relative influence exercised by the two remedies in the production of this result. In order to test more accurately the powers of the actæa racemosa, it is my intention to give it an exclusive trial in some cases of rheumatism of this variety.

I shall conclude the lecture by the examination of a pathological specimen. The lung before us, was taken from a subject who died of disease of the chest complicated with epilepsy. For particular reasons, the brain was not examined. The characters presented by the lung on dissection, as well as the symptoms during life, indicated the existence of a very aggravated degree of pleurisy, accompanied by pneumonia, affecting the left side. After the disease had continued some days, the pneumonia was considerably diminished; but the pleurisy grew suddenly worse, and this unfavourable change was accompanied by the development of an intercurrent pneumonia of the right side. The symptoms consequent upon this state of things, were still further aggravated by the disorder of the brain, which increased the difficulty of breathing, and diminised the power of expectoration. Under this complication of unfavourable circumstances, the patient died. When the muscular power necessary for efficient expectoration has been weakened either by old age or disorder of the brain, patients may suddenly expire on making any exertion, such as rising up in bed, owing to the matter in the bronchial tubes of the affected side rising towards the trachea, and flowing into the bronchiæ of the healthy side; being unable to expectorate the matter, the patients die from suffocation. This circumstance

is apt to occur in asthenic pneumonia, and more particularly in peripneumonia notha.

Here is the lung which exhibits the marks of pleurisy. A part of the effusion still remains upon the surface of the pleura, viz ; the lymph. When the chest was opened, the lung was surrounded by a copious effusion of serum. In very protracted cases, the effusion becomes more or less purulent. The lymph is seen covering both the costal and pulmonary pleuræ in amorphous masses, which are still soft and without any traces of organization. If the pleurisy had been more prolonged, these masses of lymph would have been firm, and in the course of organization. When this process commences, the lymph becomes more firm, and globules of blood are seen at different points of the plastic mass, which becomes more and more numerous, and by running together form vessels ; these vessels finally become connected with those of the adjacent serous membrane. The lymph is thus converted into an organized membrane, by a process similar to that which takes place in the incubated egg. But the series of changes do not stop here. The vessels of the newly formed membrane gradually cease to carry red blood, it becomes transparent, and if sufficiently to allow motion, it finally presents all the characters of the natural serous membrane. As the lymph when first effused is adhesive, it attaches itself both to the pulmonary and costal pleuræ, so that when completely organized, it becomes a permanent bond of union between these two surfaces. The exact form of these adhesions will depend upon their extent; if small, they assume in the most perfect degree, the appearance of serous membranes, but if they cover a considerable portion of the lung, they adhere so closely as to allow no motion, and possess more of the characters of cellular tissue. If inflammation of the pleura be moderate and of no very protracted continuance, no thickening of the membrane results ; but if long continued, a certain degree of thickening is invariably observed: in this case it has not occurred. The lung was greatly compressed by the effusion, and contains little air. Some marks of pneumonia are perceptible ; but pneumonia cannot occur in a very marked degree, where there is much pleuritic effusion ; for the pressure prevents the development of inflammation in the lungs, on the same principle that mechanical compression is employed in the treatment of external inflammations.

In the right lung we have the evidences of the pneumonia, which was the immediate cause of the patient's death. It is confined to the root of the lungs, and has not advaned beyond the second stage. The pulmonary tissue offers a less granulated appearance than usual ; when pressure is made, a thick mucus exudes. The obstruction of the tubes which resulted from the accumulation of this secretion, produced a fatal oppression, as the opposite lung, owing to the pressure of the surrounding fluid, was rendered incapable of performing its office. On the surface of the pleura is a perfectly organized band of serous membrane, indicating the existence of a pleurisy at some former period of the patient's life.

DOMESTIC SUMMARY.

Observations on Dextrine and Diastase.
By William Procter, jr.

(Continued.)

In conclusion. M. Biot believed that the acid, by the aid of heat, first ruptured the teguments of the globules of fecula, and set the dextrine free, and then, if the heat was continued, acted on the dextrine, and converted it into sugar of amidon, without the acid communicating any of its substances to the product.

In a letter addressed to the French Institute, 1st April, 1838,* M. Guérin announced his having obtained several interesting results with amidon, as follows: that *tegumentary amidon* has the same chemical composition as lignin, and that the *soluble matter* of M. Raspail was composed of two substances, *amidine* and soluble *amidin ;* the first soluble in cold water, and the second insoluble in water, either hot or cold, but capable of being held in solution through the intervention of *amidine.*

MM. Payen and Persoz, in a letter addressed to the Academy, dated 8th of April, that is to say, eight days after the letter of M. Guérin, announced the discovery of *diastase*, the active principle of *malt*, and of the property it possessed of breaking or decomposing the globules of fecula, and setting at liberty the soluble matter, or dextrine. "This substance," (diastase,) they say in their letter, "contains the less azote as it approaches a state of purity, and possesses besides the following properties: it is solid, white, insoluble in alcohol, soluble in water ; its solution is neuter, and its taste marked : it is not affected by the subacetate of lead : abandoned to itself for some time, it becomes acid ; heated to 150° or 160° Fahr., with fecula, it possesses the *remarkable power* of breaking, instantly, the envelopes, and setting at liberty the dextrine, which dissolves easily in water, whilst the teguments, insoluble in this liquid, float or precipitate according to the density of the liquor. This operation, properly managed, gives *pure dextrine*, which possesses a great power of rotation, unequalled by that obtained by any other process. When diastase is present in a solution of dextrine, it always converts the latter substances into sugar, provided the temperature is not elevated during their contact above 160° or 170° Fahr., because, if heated to ebullition, it loses the property of acting on fecula and dextrine."

"Diastase exists in the germinated seeds of

* Annal. de Chem. et de Phys. tome ix, 1834.

barley and wheat, and in the germs or *eyes* of the potatoe, (*Solanum tuberosum*,) where it is always accompanied by an azotized substance which is soluble in water, insoluble in alcohol, capable of being coagulated by heat, incapable of acting on fecula, and of being precipitated from its solution by subacetate of lead."

The following is the process for preparing diastase announced by Payen and Persoz in the same communication :—One part of malt (*d'orge germée*) is reduced to powder, and mixed in two and a half parts of distilled water. After macerating for a few minutes, the mixture must be thrown on a filter. The liquid thus obtained is to be heated to 150° Fahr., when the azotized substance is coagulated, and can be separated by filtration. The liquid then contains diastase and sugar, in quantity in proportion to the action of the diastase on the dextrine of the malt in the germinating process. It is then precipitated by alcohol, which holds the sugar in solution. This precipitate should be redissolved and again precipitated to obtain it pure.

In a subsequent communication,* Payen and Persoz state that the soluble matter obtained according to their process is not a pure substance, but is constituted of dextrine, (properly speaking,) sugar, and a substance analogous to inulin.

In a yet more recent communication† Payen and Persoz declare that fecula is composed of *amidone* and *teguments*, and hence they say amidone is a natural product, and can be obtained by means of water alone.

Amidone is insipid, neuter, without colour, diaphanous, elastic, and tenacious. It is insoluble in cold water, but swells exceedingly, and appears in solution; and in this state forms a blue colour with iodine, is precipitated by tannin, infusion of galls, subacetate of lead, lime, and baryta. The barytic compound is soluble in an excess of either hot or cold water, and by precipitating the baryta with a reagent, the amidone can be obtained in so minute a state of division that its combination with iodine is not precipitated by saline solutions.

It can be obtained by boiling one part of fecula in 100 parts of water, filtering through a double filter, and evaporing carefully to dryness; redissolving, filtering, and again evaporating to dryness; the product is amidone.

Diastase, in its action on fecula, converts the amidone into gum, or dextrine and sugar. The dextrine and sugar obtained by diastase, are not precipitated by tannin, subacetate of lead, lime, baryta, or infusion of galls. The sugar can be separated from the dextrine by alcohol of .84. It has a very sweet taste, and ferments with yeast, yielding alcohol and carbonic acid, which is not the case with dextrine. It is dextrine which communicates to beer the mucilaginous property which holds the carbonic acid, and which gives to the froth its persistence.

The teguments contain carbonate and phosphate of lime and silica.

The jelly (*empois of the French*) yielded when fecula is boiled in water, is accounted for by the swelling of the amidone when in contact with the water, after the rupture of the envelopes. When diastase is added to this gelatinous mass, it has the singular property of destroying its spongy organic character, and of rendering it perfectly soluble by converting it into dextrine and sugar.

In conclusion, MM. Payen and Persoz remark,—

1st. That the fecula of the grains and potatoes are formed of *amidone* and *teguments*.

2d. That the teguments vary in different feculæ, by the presence and proportion of an acrid, disagreeable, tenacious substance, which communicates to them their special taste.

3d. That in the action of water, lime water, iodine, baryta, and diastase, these substances pass through the envelope.

4th. That amidone is chemically identical in different feculæ, but varies in its volume and cohesion.

5th. That it is *insoluble in the cold*, but allows water to penetrate between its particles, and swell them by degrees.

6th. That it is spongy in its texture, and when considerably broken up by strong ebullition, in 100 times its weight of water, it appears to be really dissolved, and passes the filter.

7th. That the previous observations explain the formation of jelly, and its different characters when obtained from different feculæ.

8th. That the teguments, entirely deprived of amidone, do not yield a blue colour with iodine.

9th. That amidone *alone*, in fecula, produces alternately, the phenomena of colouration, and decolouration, of opacity and diaphaneity, by iodine, alcohol and water.

10th. That amidone *only* of fecula, is transformed into sugar, and gum, by the influence of diastase, water, and temperature, and that the sum of the weights of the sugar, and gum, or dextrine, equals the weight of the amidone.

11th. That in the preparation of beer, it is important to effect the entire transformation of the amidone, into dextrine and sugar; so that the transparency of the fluid will not be troubled afterwards, which would be the case if amidone was present.

12th. That in the first development of certain plants, the diastase is placed precisely at the point where the fecula ought to be rendered assimilable so as to transform the insoluble fecula into two soluble substances, capable of being absorbed by the plant.

* Journal de Pharmacie, Mai, 1834, (note by Soubeiran.)

† Annales de Chemie et de Physique, tome lvi, Aout, 1834.

13th. That diastase only transforms amidone, as it is without action on gum, (properly so called,) inulin, albumen, gluten, teguments, and lignin.

14th. That during the process of germination, the proportion of the diastase increases with the development of the gemmule.

15th. That amidone forms about .995 of fecula, while the teguments, deprived of all amidone, make up the remainder.

Finally, that diastase has become an important agent in the chemical analysis of fecula, and forms an easy means of making commercial dextrine.

M. Guérin says, that he followed M. Chevreul in naming the principles which he has described,* that is to say, *amidine* to the portion of fecula soluble in cold water; *tegumentary amidin* to the part insoluble in either cold, or boiling water; and *soluble amidin*, to prevent all confusion, to the part which is held in solution by amidine, and which is identical in chemical composition with tegumentary amidin.

The amidine of Guérin, is made by boiling fecula in a large quantity of water for a short time, allowing it to stand until the teguments precipitate, filtering, and evaporating the filtrated liquor to a syrupy consistence, when a precipitate gradually forms, which is to be separated by a cloth, and the liquid again evaporated, continuing the process until it ceases to yield the insoluble matter. When finally evaporated to dryness, the residue is completely soluble in cold water. M. Biot found a solution of this substance to possess the rotatory power three times more powerfully than sugar.

It renders cold water very mucilaginous, is insoluble in alcohol and sulphuric ether; its aqueous solution becomes acid, after standing many days, and its transparence is troubled.

Treated with nitric acid, it gives first oxalhydric, and afterwards oxalic acid.

100 parts of amidine, and 250 parts of sulphuric acid, at about 150° Fahr. have yielded 95.8 parts of anhydrous sugar.

M. Guérin says that this substance differs much from the dextrine of Biot and Persoz, because, according to their memoir, they assign as one of its chemical characters, fermentation with yeast, which amidine does not. He prepared some of their dextrine, and found that it did ferment with yeast; but suspecting that it owed this property to sugar, he treated it with alcohol and found that it lost this property, and acquired that of colouring blue with iodine, instead of vinous red or purple. Thus deprived of sugar by alcohol, continues Guérin, it is yet composed of two substances, one soluble and the other insoluble in cold water. Biot and Persoz say, that their dextrine is the same as that made with boiling water alone, which corresponds with the declaration before mentioned of Payen and Persoz, that the substance obtained by diastase is composed of dextrine, sugar, and substance analogous to inulin.

Tegumentary amidin, of Guérin, dried at 212° Fahr. has a light yellow colour neither odour nor taste, without action on paper reactives, gives a beautiful blue colour with iodine, is insoluble in water, either cold or boiling, alcohol, or sulphuric ether, and when left long in contact with water, swells, but is not altered.

Soluble amidin, of Guérin, is the substance precipitated from the aqueous solution of amidon, in the process for preparing amidine; and according to that chemist, it is chemically identical with tegumentary amidin. He also observes that fecula is composed of—

Tegumentary amidin,	2.2	100.00
Soluble amidin,	38.68	
Amidine,	59.12	

Guérin also queries whether his tegumentary amidin is identical with lignin, and owes its property of colouring blue with iodine to a small quantity of adhering amidine, or whether it is merely isomeric with that substance.

We have now gone over most of the writers on the subject before us, and have unfolded their several views as concisely as possible. It now remains to give the ideas of M. Raspail, the latest writer on the subject whose work has come to hand. He differs widely in his opinions from most of those which we have detailed, and it is proper that they also should be exposed: avoiding, however, the many sarcastic remarks with which his pages are interspersed, we shall endeavour to place his views in as clear a light as possible.

According to this writer, fecula consists of soluble matter and teguments; the latter enveloping the former; the one entirely insoluble in water, and the latter very soluble in that fluid. To the soluble matter he gave the name of *soluble substance of fecula*; and to the insoluble portion, *teguments*; stating, at the same time, that the latter consisted of the outer envelope, and an interior tissue, which, from its extreme tenuity, was capable of being diffused through the solution of the soluble substance, so as to appear in solution, though it really was not, and in time was wholly deposited.

He queries what is the *dextrine* of Biot?* and answers that it is the *soluble substance* of fecula.

He again queries what is the *diastase* of Payen and Persoz? after speaking of the unhappy application of this word to the substance in question, which signifies division, or separation, and is already used in chirurgy to signify *luxation*, he remarks, that the diastase of these chemists is distinguished by two properties new in science, and extremely remarkable: the first is its power of breaking the integuments;

* Annales de Chim. et de Physique, tome lvi.

* Nouveau Systeme de Chimie Organique, tome i, art. Amidon.

the second is that of saccharifying fecula. Now unhappily the first property is possessed by pure water, which, when heated to a certain degree, and fecula is thrown into it in small quantities, the envelopes are burst, and the soluble substance is liberated. After standing, the teguments subside.

"The second property," continues Raspail, "which consists in saccharifying fecula, is highly interesting, and is incontestible, but unfortunately it is nothing new. It belongs in justice and without any modification, under an economical relation, to those who have invented and perfected the art of fabricating beer; and under a scientific relation, to Kirchoff, who demonstrated by the most varied experiments, the influence that, not only glutinous substances, but solution of malted barley, that is to say, germinated barley, exercised on the saccharification of fecula."

Payen and Persoz say, that their diastase is not gluten, because it is soluble in water, which is not the case with that substance.

Raspail then observes that "gluten is soluble to a certain degree in water saturated with an acid, or ammonia: now in organized nature so abundant in acid, and ammoniacal products, gluten ought often to be presented under this soluble form, and it has not escaped anterior observations. Thus, before the name of *diastase*, it had received the name of *soluble gluten*, properly so called by Einhoff and Berzelius, that of *zimome* by Taddeï, and that of *legumine* by Braconnot.

Raspail then remarks that in 1826 and 7 h^e demonstrated that grain, in germinating, produces an energetic acid, which is the acetic, and that then the gluten loses its consistence, and the feculent perisperm becomes milky, which is affected gradually by the acetic solution of gluten, and the teguments are emptied of the soluble substance. The results of the action of gluten on fecula, is to transform it into sugar, then into alcohol, and lastly into acetic acid. The brewers arrest the fermentation at the first two phases. They cause the barley to germinate until the plumule has attained a little greater length than the grain, then dry it and reduce it to powder, and then dissolve it in warm water. The meal thus obtained is *malt*, and the solution, which is the saccharifying agent of the brewers, is the *diastase*, the *zimome*, and the *legumine* of others. The diastase, therefore, of Payen and Persoz, is only a mixture, more or less variable and complex, of sugar, gum, soluble substance of fecula, oil, salts, and finally gluten, to which belongs specially the saccharifying power. Again our author queries:

"What is the *amidine* of Guérin?"

"It is the *soluble substance* that we have discovered in fecula, that we have designated under the name *gummy substance*, to which Biot has believed it his duty to give the name of *dextrine*, a name which Payen and Persoz have added to the soluble substance altered by the malt of beer, which they have since abandoned for that of amidone." This is incorrect, as they do not use diastase in the preparation of amidone.

"What is the *tegumentary amidin* of Guérin?"

"It is the assemblage of the envelopes of fecula, that we have designated under the name of *teguments*."

"What is the *soluble amidin* of Guérin?"

"It is the same, according to him, as tegumentary amidin, which amidine holds in solution, and which according to the same author is identical in all its relations with tegumentary amidin; thus we have two substances which are identical, and different, and one substance which changes its name according as it is dissolved or undissolved."

"It is the interior tissue spoken of before, which from its extreme tenuity passes the filter, and appears dissolved, but which precipitates by time, that Guérin has given the name of soluble amidin."

Perhaps it will give a better idea of these substances by presenting them in the following classification, viz.:

Raspail, teguments, interior tissue, { soluble substance or gummy substance.

Biot and Persoz, teguments, { substance analogous to inulin, dextrine.

Guérin, { tegumentary amidin, soluble amidin, amidine,

Payen and Persoz, teguments, { amidone, substance analogous to inulin, dextrine or gum.

(*To be continued.*)